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21 OCT. 1931
INSTITUTE

ADVISORY

DEPARTMENT OF THE IMPERIAL COLLEGE

OF TROPICAL AGRICULTURE.

REPORT

ON THE

AGRICULTURAL DEPARTMENT,

ST. LUCIA,

1930.

ISSUED BY THE COMMISSIONER OF AGRICULTURE

[Price Sixpence.]

PRINTED BY THE GOVERNMENT PRINTER AT THE GOVERNMENT PRINTING OFFICE,
CASTRIES, ST. LUCIA.

1931.

FORWARDING DISEASED SPECIMENS FOR EXAMINATION.

PLANTS.

A few fragments of a diseased plant are of practically no value for scientific investigation. Sufficient material should always be sent so that the primary cause of the trouble may be located.

Full particulars should be given as to the nature and extent of the damage *done*, the part of the plant attacked, the nature of the soil, drainage, the prevalence of the disease, when it was first noticed, and whether any similar kind of disease has previously been observed in the neighbourhood.

Specimens of portions of plants attacked by fungi may be sent green, packed in a well-ventilated box if the time taken for delivery is under 24 hours, but if delivery takes a longer time, all leaves or soft fruits should be placed in a bottle or corked tube containing a solution made of one part rum or methylated spirits, and two parts water. As many stages of the disease as possible should be sent, with notes as to the nature of each stage.

All specimens should be accompanied by detailed particulars of the nature of the disease, and should be addressed to :—

THE AGRICULTURAL DEPARTMENT,
CASTRIES.

INSECTS.

Observations and specimens of economic importance or otherwise will always be gladly received. The following directions should be observed in this respect :—

Living insects should be packed with a supply of the plant on which they are found feeding and the box should have some small holes pierced for the purposes of ventilation. These should be carefully packed in such a way as to prevent their becoming crushed in transit.

If it is desired to preserve specimens they should be put up in bottles with tightly fitting corks. Methylated spirits, diluted rum, etc., make excellent preserving fluids.

Scale insects, etc., should be forwarded on the portion of the plant on which they are found.

If in doubt as to the best method of forwarding specimens, a letter should be sent asking for instructions and stating full details.

In all cases full particulars should be forwarded as to the nature and extent of damage done along with any other important points that may have been noticed.

All specimens should be addressed to :—

THE AGRICULTURAL DEPARTMENT,
CASTRIES.

ADVISORY
DEPARTMENT OF THE IMPERIAL
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LETTER OF TRANSMITTAL.

THE ADVISORY DEPARTMENT,
IMPERIAL COLLEGE OF TROPICAL AGRICULTURE,
TRINIDAD,
15th June, 1931.

Ref. No. C.A. 378.

Sir,

I have the honour to submit herewith the report of the Agricultural Superintendent on the working of the Agricultural Department, St. Lucia, for the year ended December 31st, 1930.

2. There has been a falling off in the number of plants sent out from the Government Nurseries during the year, especially in the number of coffee, seedling limes, grafted avocados, pine-apples and pawpaw plants. On the other hand there has been a fair increase in the number of budded and grafted limes, budded oranges, grapefruit and lemons distributed. The number of budded citrus actually distributed during the year was 3,656 plants against 854 in 1929. This is a gratifying increase but it is necessary to point out that it does not meet the demand for this type of plant. If the fruit industry is to be developed within a reasonable period of time, a distribution of some 10,000 budded citrus plants per annum for the next few years should be aimed at. At the same time attention must be maintained in the raising for distribution of other plants. For carrying on this work adequate funds must be placed at the disposal of the Department.

3. The re-establishment of Union as the Department's chief nursery and experiment station has enabled the work of training agricultural cadets to be resumed. I regard this work as of increasing importance in an agricultural community and I hope at an early date to submit proposals for still further increasing the efficiency of the training they receive.

4. The control of pests and diseases is a matter of importance in St. Lucia where there are several troubles of major importance. It is a matter for regret that the Advisory Department at the College has not on its staff a trained pathologist who could be deputed to look into these matters. In particular the root disease of cacao is steadily gaining ground.

5. Extremely low prices ruling for most of the staple products of the Island has added to the difficulties of the planters during the year. In volume most products show an increase, this is especially so in the case of copra exports which increased from 2,177 cwt. to 8,000 cwt., and in green limes from 1,165 barrels to 2,308 barrels. There was a serious falling off in exports of cacao and raw lime juice. The exports of sugar remained stationary at around 90,000 cwt.

6. The export of fresh fruit and vegetables showed an increase, and the bringing into force of the Fruit Exportation Ordinance No. 13 of 1930, which provides for the proper selection, grading and packing of the fruit, should help materially in improving the reputation of St. Lucia fruit. The erection of a central packing station and cold storage plant which has been made possible by a grant from the Colonial Development Fund, should prove a great stimulus to the further development of a fruit and vegetable industry.

7. Work among the peasants and in the Schools has been maintained, the whole time of an officer being given up to this work. This officer is only able to cope with a limited number of districts, others remain neglected. In a country which must largely depend on its peasantry for further development, it would be of great advantage to have on the staff another agricultural instructor.

8. Mr. Walters and his small staff are to be congratulated on the amount of work accomplished as recorded in this report. The usefulness of the Department will be further made manifest when the staff is strengthened by the inclusion of another trained officer.

I have, &c.,

G. A. JONES,
Assistant Commissioner of Agriculture,
Imperial College of Tropical Agriculture.

His Honour
The Administrator,
St. Lucia.

STAFF OF THE AGRICULTURAL DEPARTMENT, ST. LUCIA.

E. A. Walters, F.R.H.S., F.R. Met. Soc. ..	Agricultural Superintendent, Land Officer & Chief Fruit Inspector.
R. W. Niles	Agricultural Instructor and Fruit Inspector.
G. M. Glasgow	Agricultural Officer and Fruit Inspector.
E. L. Daniel	Foreman, Union Station.
R. G. du Boulay	Clerk to Agricultural Superintendent.
Clement Wardrope	Foreman, Botanic Gardens.
Simon Joseph) Geo. Hinds)	Plant Inspectors.
W. A. Lewis	Copyist.

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SAINT LUCIA.

Report on the Agricultural Department for the year ended December 31, 1930.

WORK IN THE BOTANIC GARDENS, AND OBSERVATIONS ON PLANTS.

The year 1930 was generally drier than usual, and the Botanic Gardens were thus enabled to recover from the flooding of the previous year. The borders were resupplied with ornamental plants, chiefly crotons, palms, and Cycads,the lawns were lifted and replanted, and dangerous trees were removed. A collection of *Eucalyptus spp.* was planted.

Several dry walls and culverts were erected, and the main drain was replaced by a concrete canal built by the Public Works Department. This is having a very beneficial effect on the drainage of the Gardens.

The propagation of ornamental plants for the steamships and for use locally was continued. A supply of vegetable seedlings, mainly tomatoes, eggplant, cabbage, etc., was maintained for cash sales to peasants and to the public generally.

PLANT AND SEED INTRODUCTION.

The undermentioned seeds and plants were presented to the Department, and are gratefully acknowledged:—

Theobroma cacao seeds and plants from Central Honduras through the United States Department of Agriculture; *Melilotus officinalis, M. indica* (clover seed), *Aleurites fordii, A. montana* (Tung oil), Sugar cane cuttings P. O. J. 2714 & 2878, *Eucalyptus sp.*, and seed collections of ornamental plants from the United States Department of Agriculture; *Entandrophragma spp.* and *Khaya ivoriensis* from Mr. J. Frew, St. Lucia; Guatemala grass from the Agricultural Department, Grenada; *Vigna catjang* (black-eye pea) from Dr. Harland, Trinidad; *Jacaranda coeruela* from the Department of Agricultural, Trinidad; *Aleurites fordii* and *A. montana* from the Department of Agriculture, Hong-Kong.

In addition, the following plants and seeds were purchased :—

Coffee arabica, Jamaica "Blue Mountain," Indian Cauliflour seed, "Benares maincrop," pineapple plants, and peanuts.

PLANT PROPAGATION AND PLANT DISTRIBUTION.

The distribution of most planting material increased during the year, owing to large demands for orchard plants in which the smaller growers were active; orders also were delivered within a much shorter time, owing largely to the improved methods of propagation described in last year's report, and the prices of plant material were reduced. Seedling Lime plants and papaw plants were not so much in demand as last year, and coffee seedlings (Jamaica Blue Mountain) were not obtainable in time for planting. Other planting material however shows an increased production, and the demand remains strong.

The following schedule shows the quantity of planting material distributed during 1929 and 1930.

Plants, Seeds and Cuttings distributed by the Agricultural Department during 1929 and 1930.

	1929.	*1930.*
Lime seedlings	1,9661	14,585
Budded and grafted limes	312	2,467
Sour orange seedlings	...	1,110
Budded oranges	306	582
Budded grapefruit	235	521
Budded lemons	...	86
Grafted mangoes	138	116
Grafted avocados	256	158
Pineapple plants	1,253	81
Coffee plants	55,150	1,665
Coconuts	119	86
Dwarf coconuts	18	33
Claret nuts	22	14
Kola plants	300	...
Grafted nutmegs	62	57
Papaw plants	1,690	530
Total Orchard plants ...	79,522	22,091
Cane plants	72	5,895
Sisal plants	4,274	...
Forest plants	120	225
Miscellaneous plants and cuttings	82	150
	84,070	28,361
Vegetable seeds (lb.)	22	18
Vegetable seedlings	2,369	4,287
Ornamental plants and cuttings ...	780	285
Green dressing seed (lb.) ...	248	160
Fodder plants and grasses (bdls.) ...	12	226

NOTES ON PLOTS ESTABLISHED AT THE AGRICULTURAL STATION, UNION.

Citrus Orchard.

Fruit trees: The Grapefruits "Marsh" and "Duncan" have made good growth, and have provided budwood for propagation. Elsewhere in the Colony these varieties have commenced to bear, and the fruit appears to be true to type, and is of good flavour and colour.

The collection of oranges has been utilised for budding as above, and some of the local varieties have commenced to fruit.

The grafted and budded West Indian limes, now three years old, on sour stocks in the orchard, have made excellent progress and carry a first crop of fruit. Withertip disease has been inconspicuous and negligible in effect. The hybrid varieties have been maintained, but no crossing was attempted this year.

Lemon "Villafranca" is to be established here by topworked old stocks.

Intercrops: Pineapples have been continued and are proving adaptable as a citrus intercrop. Beds of sectioned pineapple rhizomes (vide Annual Report for 1929, page 3) have been planted with the first plants raised; these are now 14 inches high, and are of good normal growth. This method of propagation has to some extent been adopted on local estates, and has been circularised to many enquirers overseas.

Green dressings of leguminous crops such as *Tephrosia, Canavalia* and *Crotalaria* have been freely used. These are pruned half-way back for providing mulch as needed, so that the stools tiller readily and by this means a permanent and economic cover crop is kept going.

Imported *Coffea Robusta* was sown for providing seedlings for distribution. The plants were heavily attacked by the Coffee leaf-miner throughout the early stages. There is little demand for this coffee, except for local use.

Cacao Plot.

The cacao crop for the year was reaped mainly in January and February, and in May and November, and amounted to a cured bean weight of 383 lb. which was sold for £4 17 0. The quantity of pods carried is compared below with the 1929 crop:—

Year.	No. of trees	Total pods	Pods rat eaten	Pods diseased	Pods sound
1929	308	14,847	6,645	2,958	5,244 (=4,930 lb.)
			44·8%	19·9%	35·3%
1930	308	7,867	2,717	339	4,811 (=4,871 lb.)
			34·5%	4·3%	61·2%

An improvement of 25 per cent. in the crop recovered from the total pods has been assisted by the use of poison baits against rats and by attention to general sanitation, including the destruction of diseased pods and branches. A spray programe against pod-rots and bark diseases was carried out using a proprietary tar distillate solution, and this appears to be useful.

Orchard Section.

This area has been worked in budding beds and seed beds for citrus and avocado propagation, and most of the plants distributed have come from this section. The permanent orchard trees have made good progress, and have been added to by a row of transplanted selected nutmegs, by a large one-seeded Sapodilla, and by the Mexican Cherry (*Prunus capuli*); the new "Temple" orange has been introduced.

The lower part of the field has been opened up by growing sweet potatoes, and is now planted with West Indian limes on sour stock budded and grafted from high bearing parents, and numbered according to parentage. A collection of Tahiti and Woglum lime and of Trinidad No. 1 hybrids has been established. Temporary beds of Bonny Best tomato plants were laid out as an intercrop, and plants were supplied to meet a moderate demand. Banana varieties Maman s'enfant, Short fig, Gros Michel and Fig Carata have been maintained for shade and intercroping. The old established orange trees in this field have been destroyed as the fruits were found to be dry, and the trees were diseased through low budding. It was therefore undesirable to inarch and save these varieties.

The layout of this area has been revised to allow beds to run the full length of the field and to reduce the cross drains. This will facilitate the use of the motor cultivator.

Coconut Plot.

This area was subject to flooding in earlier times and has proved expensive owing to infestation by Johnson grass. This has been treated by flat forking and sowing with Pigeon Peas and Crotalaria, and the pest now appears to be under control. The Malayan dwarf coconuts continue to do well, and have fruited and now bear seed-nuts. The local varieties are thriving.

Chaulmoogra Oil Tree.

A collection of *Hydnocarpus anthelmintica* grown from Burmese seed supplied in 1927 by the British Empire Leprosy Relief Association has been established by the river The trees are from 8 to 10 feet high, and are growing satisfactorily.

Sugar-cane.

The variety plots of sugar-cane have been maintained and expanded to provide cuttings for the sugar estates. The P.O.J. varieties continue to do well and are being frequently distributed. About fifteen acres are now planted on estates, mainly in P.O.J 2878. This variety stood the dry weather of 1930 extremely well.

Demonstration Orchards.

The six-acre field laid out in one-acre plots each of selected orchard trees was brought into good condition during the year and intercrops were grown for cash sales. The sour stocks planted here in April were budded with selected citrus varieties, and the permanent trees are now as follows:—

Plot 1. Oranges: 24 trees each of Parson Brown, Lue Gim Gong, and Valencia Late, budded November, 1930.

Plot 2. Grapefruit: 36 plants each of Marsh and Duncan, budded November, 1930.

Plot 3. Avocados: 8 plants each of Nimlioh, G.O. (large fruited variety), Galvana (local green—fixed seed), St. Anne, Fuerte, and G.H. (local medium green), all propagated on local stocks, and planted 2nd January, 1930.

Plot 4. Mangoes: 18 plants of grafted Julie and 2 budded Julie on Mango Long stock, 2 Mon Repos late, 2 Ressource late, and 6 Peach mangoes, planted 18th October, 1930.

It was found necessary to replace some budded sour stock which failed to push their buds in order to standardise the plots with trees of regular growth.

The remaining two acres are being prepared for lemon and nutmeg plots.

Intercrops.

The land was not ready for intercropping before June, owing to the heavy work of clearing and draining. In this short season, however, the following vegetable crops were planted :—

Sweet Potatoes.

One-third of an acre of imported American varieties. The crop was poor owing to late planting, the yield of clean tubers being 240 lb., reaped in December. The plants ran largely to vines, and several thousand cuttings have been distributed. The results in cooking trials of the varieties were as follows :—

Variety—Gold Skin—dry mealy type; soft, yellow, good flavour.
—Yellow Jersey—dry mealy tpye; light yellow, good flavour, medium dry.
—Porto Rico—moist, soft type; watery. flavour poor.
—Nancy Hall—moist, soft type; Reddish, moist, flavour fair.
—Southern Queen—moist, soft type; white, medium dry, excellent flavour.

The variety Southern Queen is a promising potato near the local white variety, and should prove suitable for the Canadian market.

Groundnuts.

Five varieties of groundnuts imported from St. Vincent were planted and made a fair crop, some of which was destroyed by mice, 300 lb. being sold.

Tomatoes.

A few rows of Bonny Best were planted as an educational feature in order to popularise a good variety in place of the local semi-wild fruits so frequently offered for sale. Although wet weather prevailed, a crop of 290 lb. fruit was marketed from one-eighth acre.

Yams.

These generally did not do well owing to late plantings and to wet and cold weather persisting throughout the usual dry season. The following yields were obtained :—

Variety—Potato yam : 187 banks; yield 240 lb. tubers.
„ Lisbon yam : 100 banks ; yield 191 lb. tubers.
„ Chinese purple : 3 banks ; yield 49 lb. tubers.

Two varieties of Black-eye peas, the common, and the long-pod variety, were planted as a covercrop, and to some extent for food, and yielded 300 lb. peas. Plantains, tanias, cabbages, and papaws were grown on a small scale. The Benares maincrop Cauliflower was tried and proved satisfactory, and a larger amount of seed is now being introduced direct from India.

Lime Experiment Plot.

Work on the experimental lime plots was continued during the year, and the area has now been drained, weeded from Para grass, and flat-forked, and the stations for the lime plants have been marked out and dressed with a green manure. The whole area has likewise been green-dressed to induce uniformity in preparation for planting. In the meantime the sour stocks are being grown for budding in the nurseries, in order to allow of better standardisation of the stocks, and these should be planted out during the next rainy season. The introduced varieties of Pigeon peas—Arahar, Trinidad selected, and Hawaiian dwarf peas were seeded and seeds were distributed to coconut planters. The results obtained with pigeon peas as a cover crop and for cut mulch in coconuts, have in certain cases been very encouraging.

AGRICULTURAL CADETS.

The number of boys in training as Agricultural Cadets was increased to ten during the year, five probationers in the nurseries being indentured as Cadets. Their agreement provides for training in nursery and agricultural operations, with compulsory study time, and the use of sleeping quarters at Union. The Cadets are provided with a subsistence of one shilling per diem, with rewards for work of special merit, fines being inflicted for misbehaviour. The Cadets are now regularly employed in the general routine and on most of the skilled operations, and they are becoming interested and industrious. The scheme is working satisfactorily and it is hoped to continue it, although special financial provision has not been made.

FOREST CONSERVATION.

Three inspection tours were made in the forest area to determine what valuable species existed which were likely to repay exploitation. There was found to be a fairly plentiful admixture of useful trees such as in the families *Lauraceae* (Lauriers), *Verbenaceae* (Fiddle-woods), a few *Sapotaceae* and numerous White-woods. Seedlings were plentiful, but in danger of extinction through rising bush in the thinner forest, and heavy shade in the dense forest. Regeneration of the more valuable woods after cutting is retarded by the trees of lesser value which readily fill in and ultimately crowd out the useful species.

The question of a forest policy has been taken up with the Advisory Department of the Imperial College of Tropical Agriculture, and it is hoped that arrangements will be made for a Forest Officer to visit the Colony in order to investigate and report on forest conservation.

The collection of seeds and the planting of useful timber trees has been continued, in co-operation with a local estate interested in timber supplies.

CONTROL OF INSECT PESTS.

Scale Insects.

Scale insects were not so conspicuous as usual during the year, and entomophagous fungi were observed to be particularly active on Citrus snow scale and on *Coccus viridis* infesting mangoes. The Chaffy brown scale was responsible for dieback of planted budded citrus trees, and being inconspicuous in appearance, is generally more destructive than is realised.

Coconuts suffering from drought were attacked by scale insects, mealy bug, and white fly, and in consequence lost their lower leaves and part of the crown, the remaining leaves turning yellow owing to the destruction of the chlorophyll.

Although the year's rainfall was low, there was no well-marked dry season, heavy showers falling throughout the first four months. The resultant humidity largely accounts for the favourable growth of scale fungi and the general absence of severe scale infestation.

Coconut Weevil.

The coconut weevil, a black and gold insect found infesting and destroying leaf-stalks of coconuts in the Riviere Dorée District, has been identified as *Polyderces zonatus* by Professor H. A. Ballou, Commissioner of Agriculture, who remarks on its earlier occurrence also in Guadeloupe. No serious extension of its activities has apparently taken place.

Coffee Leaf-miner.

This insect (*Leucoptera coffaella*) is fairly common on coffee in the Soufrière district. In its larval stage it forms galleries in the leaves of *Coffea arabica*, *C. robusta*, and *C. liberica*. Dr. J. G. Myers, Sc.D, Research Entomologist of the Empire Marketing Board, who visited the Colony in May on a short investigation, obtained live leaf-miners from infested plants and reports that no trace of parasites was found on dissection of these, but possibly parasites may be obtained from the egg stages. Scale insects are suggested as being more destructive than the leaf-miner. The investigation is to be continued on his return tour.

Cane Borers.

Dr. Myers also visited the sugar factories and fields in his work on sugar-cane borers. Infestation was found to be higher than was expected in the ratoon canes. Settings of plant canes when planted after a preliminary soaking in water were observed to be much more uniform than fields with untreated cuttings. More recently the percentage of spoilt canes and of destroyed cuttings has apparently increased, and it will be necessary to supplement natural control by organised methods, including possibly the breeding of parasites. This is now under consideration.

Garden Pests.

The increased interest in vegetable growing has drawn attention to the losses caused by mole-crickets and slugs in destroying young plants. Treatment by clearing up refuse and heaps of stones, dusting with soot or white lime, and the use of soil fumigants such as Vaporite, has proved effective.

CONTROL OF FUNGUS DISEASES.

Withertip Disease of Limes.

A wet January and February resulted in an onset of the blossom blight stage of the Withertip disease during the latter month. The rest of the year however was drier, and the foliage and flowers were in good condition and a satisfactory crop was produced. The good effect of mulches and attention to manuring is evident in the Soufrière valley where the orchards show a marked improvement.

Cacao Root Disease.

Rosellinia sp. is responsible for more losses in cacao than any other single disease or pest. Control by means of isolation drains has generally been found unsuccessful, and attention has been directed more to soil amelioration. The replacement as a shade tree of the susceptible "Immortelle" by the very resistant "Gliricidia", is a gradual process, but is consistently advised where *Rosellinia* fungus is prevalent. The use of tar distillate wash has considerably improved the bark wounds and pod-rots in several plantations. The parasitic fungus *Rosellinia* has now been observed on Rough Lemon, and in one instance on a damaged root of sour orange.

Coconut Diseases.

The survey of coconut diseases in the Colony commenced in 1927 was completed during the year 1930, and a definite record of disease sites is now available. Planters have accordingly been advised against procuring seed nuts from specified localities. The number of trees examined in 1930 was 24,269 of which 26 (0.11 per cent.) were diseased, ten of these being destroyed and the remainder treated and put under observation.

The total number of trees examined during the period November 1927 to May 1930, and the percentage diseased is shown below:—

Examined	462,704	Destroyed	349
Diseased	1,169	Treated	296
(Percentage diseased = 0.25 per cent.)		Under observation	524
		Total	1,169

Of the total diseased trees, 1,169, the percentage incidence of disease was as follows:—

			89.3
Budrots	38.7	Leaf yellows	5.7
Little leaf	30.8	Senility	4.3
Bitten leaf	12.7	Withering leaf	0.7
Stem bleeding	7.1		
	89.3		100.0 per cent.

On one plantation subject to leaf-yellow and subsequent bud-rots, the soil has been treated with white lime forked in, drains opened up and Para grass removed initially, followed by a close planting of the dwarf pigeon pea. Subsequently the pea bush is cut and used as mulch and the stool allowed to tiller into vigorous fresh growth. As a result the Para grass is kept under control. The localities on the Windward coast where this treatment had been given, were inspected after a long drought, and the palms were found to be in a vigorous growing condition with full crowns of dark-green leaves, in striking contrast to an adjoining field where yellow, wilting palms indicated the untreated plots.

The use of Gliricidia stakes in coconuts groves for growing and cutting as live mulch has had similar beneficial results.

Sugar-cane Diseases.

Diseases were not conspicuous during the year, and no special work was done on sugar-cane.

PLANT QUARANTINE.

The importation of all plant material was carefully watched during the year, and one illegal consignment of roots was intercepted and destroyed. All soil imported with permitted plants was washed off and burned. A total of 54 importations was treated by fumigation during the year.

The following plant material is not permitted importation into this Colony as it may be the means of introducing diseases or pests : —

1. COCONUTS.

Coconuts, coconut plants, or any parts thereof from all places, except under licence — vide Proclamation No. 2 of 1924.

2. BANANAS.

Banana plants or any parts thereof that may have come directly or indirectly from Trinidad, Tobago, Grenada, Central & South America, Canary Islands, West Africa and Jamaica—vide Proclamation gazetted 8th September, 1917, and Proclamations Nos. 6 and 13 of 1927.

3. CACAO.

Cacao plants from South America, East and South of the Isthmus of Panama—vide Revised Rules and Orders of St. Lucia 1916, Ch. 7, Sec. 2 (*b*).

4. CITRUS (Orange, Grapefruit, Limes, etc.)

The importation of all plants of the citrus family is absolutely prohibited, except under licence—vide Proclamation No. 3 of 1927.

5. COTTON.

Cotton seed and all parts of the cotton plant are prohibited except under licence, and subject to treatment on arrival—vide Proclamation No. 3 of 1924.

6. COFFEE, Etc.

The importation of all coffee, mango, guava, sapodilla and star-apple plants from the Bahama Islands, Ceylon, Cuba, India, Jamaica, and the Philippine Islands is prohibited—vide Proclamation gazetted 10th February, 1917.

7. SUGAR-CANE.

All plants of the grass family including sugar-cane, sweet corn, sorghum, are prohibited except under licence—vide Proclamation No. 6 of 1921.

8. SOIL, CONTAINERS, Etc.

Any earth or any container in which prohibited plants may be or may have been packed is prohibited, vide Revised Rules and Orders of St. Lucia, 1916, Ch. 7, Sec. 2 (*f*).

9. FRUIT & VEGETABLES.

By Notice No. 7 of 1930 under the authority of the Customs Amendment Ordinance, the importation of soil, fruit and vegetables—except plantains, nuts, onions, Irish potatoes, and canned, dried, or processed fruit and vegetables—is absolutely prohibited from all countries other than the British Isles, Canada, and the British West Indies (which does not include the Bermudas, Bahamas, or British Guiana). All importations from countries permitted must be accompanied by a certificate of origin, stating that the material has not been grown in an area affected by Mediterranean Fruit fly, and has been inspected, and is free from that pest.

Exportation of Plant Material.

Exporters of fresh fruit, plants and seeds may obtain information on overseas quarantine and certificates when necessary from the Agricultural Department.

DISEASES AND PESTS WITHIN THE COLONY.

The existence of the following diseases and pests should be notified to the Agricultural Department in order to comply with the requirements of the Plants Protection Ordinance : —

Coconuts—Budrots of coconuts ;
Sugar-cane—Gumming disease of sugar-cane ;
Bananas—Panama Disease, Marasmius disease, Banana Weevil and borer.
Cotton—Pink bollworm of cotton ;

the presence of the parasites Love Vine and Bird Vine should also be reported.

ANIMAL QUARANTINE.

FARM PRODUCTS.

Under Ordinance No. 17 the Governor in Council may prohibit the importation of animals or farm products which may be a means of introducing disease ; the importation of animals and farm products from the United Kingdom, Isle of Man, and Channel Islands is prohibited ; the importation of animals and farm products from Nevis and Grenada was temporarily prohibited on account of Anthrax.

IMPORTATION OF BEES.

Under Ordinance No. 18 the importation of any queen bee or used bee-keeping apparatus, is prohibited except under certificate approved by the Agricultural Superintendent, to the effect that Foul Brood has not existed in the apiary or in connection therewith.

FARM STOCK AND POULTRY.

Five importations of pedigree cattle were made during the year by planters. The proposed introduction of selected farm stock by the Agricultural Department was postponed temporarily until accommodation and pasture could be secured. The selection will be made during 1931 and imported with funds provided by the Colonial Development Committee as a part of the extension work.

Of the pedigree bulls imported for planters during 1930, one Holstien bull was reported dead towards the end of the year. The cause of death appeared to be anaemia brought on probably by internal parasitic worms, not amenable to the usual drenches.

It should be noted that imported calves are readily subject to malnutrition and loss of condition through absence of rationing and unsatisfactory diet. Local pastures and cut fodder should always be supplemented by a concentrated ration including milk or corn meal food for the first eight months of growth. Further, that post mortem examinations should always be conducted where doubt exists as to the cause of death.

The visit of the Hon. H. J. Pink. Colonial Treasurer. to Bermuda in October on marketing problems has resulted in definite information on the egg demand there. It has now been suggested that poultry clubs should be established in St. Lucia to meet this demand for fresh eggs. In the absence of private endeavour, the Agricultural Department has been asked to undertake the raising of laying strains, and it is probable that this will be arranged in conjunction with the farm stock programme.

EXAMINATION OF AGRICULTURAL PRODUCTS.

The following correspondence deals with the examination of lime silage conducted through the courtesy of the Imperial Institute.

1. From the Agricultural Superintendent, St. Lucia to the Director, Imperial Institute, May 22nd, 1930.

Sir,

I am forwarding by parcel post two samples of lime press cake, "A" over matured sample, "B" less matured sample, and I have the honour to ask if you will be good enough to examine these samples with a view to advising me as to their nutritive value for animal food.

2. The following notes refer to both samples :—

Lime press cake is a product of the lime (*Citrus medica, v. acida*) industry. The lime juice is expressed from the ripe limes by passing these through a mill, and the rejected skins are then dumped into prepared holes and allowed to form a close mass of yellowish, sweet and vinous-smelling, moist cake of the consistency of dough. This substance does not become infected to any extent by fungi, and fermentation appears to remove final traces of the acid juices remaining in the fruit. When from six to twelve months old, this cake is dug out, the upper brownish oxidised portion being rejected, and the yellow interior is fed freely to stock. Cattle have formed a great liking for this cake, and reject cut fodder in order to feed from the lime skin silage. After a few weeks of such feeding, the animals become firm and plump, show increased vigour, and a general improvement.

3. It has been found that the the silage has a destructive action on the hooves, and for this reason it is inadvisable to allow cattle to trample in the silage which is therefore fed from barred enclosures.

4. Stock keepers have expressed a great belief in this by-product, and I should accordingly be glad if you would advise me as to its composition and food value.

Thanking you, &c.

2. *Report from the Imperial Institute dated July 22nd, 1930.*

REPORT ON

LIME PRESS CAKE FROM ST. LUCIA.

The samples which are the subject of this report were forwarded to the Imperial Institute by the Agricultural Superintendent, and are referred to in his letter No. Ag. T. 213/49 of the 22nd May, 1930. They were stated to represent the press-cake obtained on expressing the juice from ripe limes and subsequently kept for several months in the form of silage. It was desired to ascertain their composition and nutritive value.

Description.

The samples each weighed 3 lb. and were as follows :—

A. Over matured. Soufrière, 22.5.30.
B. Less matured. Soufrière, 22.5.30.

The samples, which were very similar in appearance, were of the consistency of thick sludge and of dark brown colour, sample *B*. being of a somewhat lighter tint towards the middle. The materials as received had a putrid and very unpleasant odour, and had evidently suffered decomposition during transit.

Results of Examination.

The samples, as received, were tested for acidity with the following results :—

	A.	*B*.
	per cent.	per cent.
Acidity expressed as citric acid	0.74	0.86

After being air dried and ground, the samples were analysed with the results given below, which are expressed on the samples with the amount of moisture originally present in them when received. The corresponding figures recorded for green maize silage and lucerne silage are included in the table for comparison.

	Present samples of lime press-cake.		Silage (from pits.)	
	A.	B.	Green Maize.	Lucerne.
	per cent.	per cent.	per cent.	per cent.
Moisture	83.2	84.6	81.5	83.1
Crude Proteins	1.5	1.6	1.6	3.7
Fat	1.0	0.8	0.8	1.4
Carbohydrates etc. (by difference)	6.6	6.2	9.0	4.8
Crude Fibre	4.8	4.3	5.7	5.0
Ash	2.9	2.5	1.4	2.1
Nutrient Ratio	1:5.9	1:5.0	1:6.8	1:2.2
Food Units	13	12	15	18

The composition of the present samples, reduced to a moisture-free basis, was as follows :—

	A.	*B*.
	per cent.	per cent.
Crude Proteins	9.1	10.6
Fat	6.1	5.3
Carbohydrates etc. (by difference) ...	38.9	39.9
Crude Fibre	28.4	27.9
Ash	17.5	16.3
Nutrient Ratio	1:5.8	1:4.9
Food Units	77	80

From the foregoing results it will be seen that the two samples were fairly similar in composition.

Remarks.

The decomposition which these samples of lime press-cake had undergone during transit has no doubt had some effect on their composition, and their condition on arrival was unsatisfac-

tory for feeding purposes. In the fresh state they would no doubt be more attractive to cattle. The analytical figures obtained show that the press-cake has approximately the same composition as green maize silage, with a slight advantage over the latter material in containing rather less fibre and somewhat more mineral constituents. The press-cake however is not equal in composition to lucerne silage, which contains twice as much protein.

Feeding trials would be necessary to determine the actual value of the lime press-cake in comparison with other materials.

PROGRESS IN THE CHIEF INDUSTRIES.

SUGAR.

The area in sugar-cane remains at about 4,300 acres. This figure now includes cane land in some sugar estates interplanted with coconuts, which will cease to grow a sugar crop within the next few years. The crop for 1930 was good, the total amount of Sugar manufactured being 5,153 tons as against 4,997 tons in 1929, although the export value was much lower. The average export price was £9 10 0 per ton of sugar, which is below the cost of production.

A larger quantity of factory Molasses was made and exported, or converted into Rum, but little trade was done in fancy Syrups by the smaller growers.

The production of Rum was maintained during the year, being 29,918 proof gallons as against 39,198 gallons in 1929. The price was improved. The following figures show the exported quantity and value of Sugar Products comparatively during 1929 and 1930.

	1929.	Value £	1930.	Value. £
Usine Sugar (tons) ...	4,536	51,237	4,567	45,289
Molasses & Syrup (galls.) ...	127,273	3,047	157,254	2,872
Rum (proof galls.) ...	2,013	339	1,583	278

The factories have given serious attention to the reduction of costs by factory economies, by concentrating on the better cane areas, improving the pen manure, and reducing the application of artificial manures. The reduction of wages, salaries, and staffs which has been necessary has been carefully carried out, but has unfortunately created some distress in the affected areas. To some extent unemployment has been relieved by the making of new roads, and the small holders have been urged to exploit their holdings more fully. This is dealt with under Peasants Development Service.

The cane growers have taken up the cultivation of the P.O.J. canes enthusiastically and further supplies are being released from the Experiment Station. A collection of the newer Barbados canes has also been used for supplies. The green manures Crotalaria, Horse-beans, and edible peas have been interplanted in plant canes, and supply plots have been established at several factories. Closer spacing of the cane rows as recommended by Mr. G. A. Jones, Assistant Commissioner, Advisory Department of Agriculture, has had good results.

CACAO.

The market for Cacao continued poor generally throughout the year. The better grades realised from 45/- to 50/- per cwt. The crop was good, being favoured by drier weather, and an increased exportation is shown below. This crop is not now attractive to small growers in the coastal areas owing to the losses caused by disease and lack of manures which follow low prices. In the highlands it continues to be planted in new land, with catch crops of tanias and plantains. Whilst maintaining the standard of the established cacao, the larger growers are giving more attention to fresh fruit, and particularly to citrus.

Exported 1929	..	8,906 cwt.	valued at £18,864
,, 1930	..	10,449 ,,	,, 19,261

LIMES.

Weather conditions were ideal for this crop, and a good crop season was experienced in spite of the disabling effect of falling markets. Concentrated Lime Juice fell in value from £20 to £9 per pipe c.i.f. Handpressed Lime Oil averaged 50/- per lb. and Distilled Lime Oil 30/- per lb. throughout the year.

The total exported crop of the Colony calculated in barrels of fruit was :—

1929	..	37,345	barrels valued at	£29,531
1930	..	25,970	„ „	23,619

Lime growers have been encouraged by a fair immunity to withertip disease in the districts now recognised as being reasonably productive, and have given more attention to pruning, manuring and mulching. Where conditions are favourable, irrigation is being practised with a good response on the part of the trees. In the high rainfall areas lime growing has not been encouraging, and is better abandoned.

COCONUTS.

The production of Coconuts continues to increase and the exports of Copra have correspondingly improved. Prices were poor however and the value of Coconut Products was lower than for the last four years. Copra averaged from £22 to £15 per ton c.i.f. during the year.

The following amounts were exported :—

	1929	Value. £	1930	Value. £
Coconuts (number)	295,983	1,032	268,078	862
Copra (lb.)	803,889	9,878	896,224	7,428
Coconut meal (lb.)	3,874	6	...	...

A small beginning has been made in exporting choice dry nuts to Canada, and this should be a useful alternative to copra making. Green water-nuts have also been shipped in cold storage.

The Coconut plantations in general have not suffered seriously through the low rainfall and are in a satisfactory condition. The use of peas and beans and other green dressings is becoming more general as planters realise their value in mulch production and weed control. The Coconut Disease Campaign has also resulted in a reduction of annual disease outbreaks, and in better maintenance generally. The fall in price of Coconut Products has necessarily caused some economies in the plantations. More attention is being given to copra drying by furnace heat, and to the possible reintroduction of hot-air driers of the Chula type. The Malay dwarf coconut is proving a heavy cropper when five years old, and is much in demand. So far it has remained practically free from local diseases.

PROGRESS IN MINOR INDUSTRIES.

FRESH FRUIT & VEGETABLES.

The production and export of fruit and vegetables attracted more attention during the year, and was stimulated by the visits of Canadian brokers and importers, with whom trial shipments were arranged. The declared co-operation of the Canadian National Steamships with requests for information and suggestions on tropical freight rates also showed readiness to help build up a steady trade in spite of initial discouragements.

The following shipments were made :—

Fresh Fruit Exports, 1930.

			Quantity—1930.						Value.	
			Canada.	Bermuda.	U. K.	U. S. A.	Misc.	Total.	1929 £	1930 £
Green Limes	...	Barrels	40	509	66	1,169	24	2,308	1,758	3,218
Grapefruit	...	crates	54	163	10	...	19	246	21	65
Oranges	...	„	97	299	...	...	Un	known	129	223
Other Citrus	...	„	25	49	...	...	...	74	...	40
Avocado Pears	...	„	111	1,357	...	...	160	1,628	225	366
Mangoes	...	„	118	409	24	...	Un	known	1,383	915
Pineapples	...	„	5	31	2	...	11	49	83	18
Miscellaneous	...		...	...	...	...	...	...	1,560	1,573
Total	...		...	...	...	...	...	...	£5,159	£6,418

The following statement shows the produce inspections conducted by the Fruit Inspectors during the year.

	Voluntary inspections Jany.—Oct.	Compulsory inspections Oct.—Dec.	Fees received	Approx. f.o.b. export value.
Packages ..	1,897	1,636	£7 12 9	£670

A voluntary inspection service was maintained on produce exported prior to October, 1930, when inspection was enforced by law (Fruit Exportation Ordinance No. 13 of 1930). Assistance was also given in preparing and shipping fruit from local Packing Houses. Co-operation generally was good, and little difficulty was experienced in weeding out the worst types of fruit and crates, in order to establish the necessary standard of quality. Indiscriminate packing in backyards was also prohibited and facilities were made freely available at the temporary Packing Shed established on the Reclamation Land. Fruit was rejected mainly on account of bruises and broken skins, due to defective picking and handling, and a smaller proportion being over-ripe.

In connection with vegetables for export, planters' produce has been mainly confined to tomatoes and eggplant. A small crop of good quality tomatoes was bearing towards the end of the year, and was subsequently shipped. Interest is being stimulated in the following seasonal crops, as specified in the reports of the Canadian vegetable importers who are prepared to contract on shipments of guaranteed quality, viz :—

Tomatoes—Bonny Best, Marglobe and Livingstone Globe ; from March to May.
Eggplants—Black Beauty ; from January to June.
Green Beans—Stringless varieties ; from January to July.
Cucumbers—Medium long, green ; from December to May.
Melons—Pink-fleshed variety ; from December to May.
Carrots—Medium, half-long varieties ; from December to May.

Also to some extent in white fleshed sweet potatoes of high quality. All the above produce should be exported in the standard pack and trade crate.

BAY OIL AND BAY RUM.

A small trade was done in Bay Oil and Bay Rum produced locally, and the market for Bay Oil was improved. Lime Factories are now becoming interested in distilling bay leaves during the period when the lime crop is low.

EXPORTS FROM ST. LUCIA, 1930.

		Quantities 1929	Value £	Quantities 1930	Value £
Sugar Products :—					
Sugar, Vacuum Pan	Cwt.	90,720	51,237	91,352	45,289
Molasses and Syrup	Gall.	127,273	3,047	157,254	2,872
Rum ...	p. Gls.	2,043	339	1,583	278
			£54,623		£48,439
Cacao Products :—					
Cacao ...	Cwt.	8,906	18,864	10,449	19,261
Lime Products :—					
Concentrated Lime Juice ...	Gall.	21,259	5,879	16,050	2,312
Raw Lime Juice ...	,,	40,675	3,212	5,140	183
Distilled Lime Oil	,,	685	9,049	954	10,751
Essential H.P. Otto of Limes ...	,,	329	9,633	328	7,155
Green Limes ...	Barrels	1,165	1,758	2,308	3,218
			£29,531		£23,619
Coconut Products :—					
Coconuts ...	No.	295,983	1,032	268,078	862
Copra ...	Cwt.	2,177	9,878	8,002	7,428
Coconut Meal ...	Tons	1	6	...	...
			£10,916		£8,290

Exports From St. Lucia.—(*Continued.*)

		Quantities 1929	Value £	Quantities 1930	Value £
Honey Products :—					
Honey ...	Lb.	47,270	552	37,241	376
Bees-Wax ...	,,	451	19	196	9
			£571		£385
Bay Products :—					
Bay Oil ...	Gall.	204	309	189	387
Bay Rum ...	,,	10,644	1,901	10,876	1,792
			£2,210		£2,179
Spices :—					
Nutmegs ...	Lb.	9,030	409	11,822	378
Mace ...	,,	2,078	277	2,160	166
Kola Nuts ...	,,	20,305	204	15,212	166
Miscellaneous ...	,,	985	27	1,738	30
			£917		£740
Vegetable Products :—					
Plantains ...	Bchs.	...	...	189	14
Farine ...	Lb.	17,311	132	20,871	163
Yams ...	,,	...	...	5,049	46
Miscellaneous ...		...	95	...	77
			£227		£300
Fresh Fruit & Products :—					
Bananas ...	Bchs.	6,818	509	4,568	219
Mangoes ...		...	1,383	...	915
Oranges ...	No.	64,173	129	121.344	223
Grapefruit ...	,,	4,261	21	14,244	65
Pine Apples ..		...	83	...	18
Pears (avocado) ...		...	225	...	366
Mixed Fruit ...		...	1,560	...	1,613
Preserved Fruits		...	2	...	22
Jams, Jellies, etc.		...	17	...	25
			£3,929		£3,466
Forest Products :—					
Boards (native) ...	C. Ft.	169	15	294	16
Cedar ...	,,	158	30	228	37
Firewood ...	Cords	927	465	1,385	669
Logwood ...	Tons	1,013	2,713	35	93
Pimento Wood ...	C. Ft.	1,078	143	210	21
Hardwood ...	,,	1,796	143	2,795	251
Brooms ...	Doz.	1,458	54	2,004	88
Charcoal ...	Bags	42,879	2,505	42,324	2,140
Furniture (Household)		...	23	...	95
			£6,091		£3,410
Live Stock & Products :—					
Cattle ...	No.	...	...	2	17
Poultry ...	,,	...	...	...	...
Hides ...	,,	1,308	516	731	138
Skins ...	,,	1,586	55	1,689	51
Shells—Turtle ...	,,	133	70	241	171
Fish Oil ...	Gall.	14	7	...	...
Horses ...	No.	...	325	45	248
Mules ...	,,	..	24	1	3
Asses ..	..	...	8	7	16
			£1,005		£644
Miscellaneous Products :—		..	147	...	362
Total Exports		...	£129,031	...	£111,095

AGRICULTURAL OUTLOOK.

The total value of exported agricultural produce in 1930 was £111,095 as against £129,031 in the previous year. This is the lowest export value obtained since 1914, when the value was £99,657. This is directly due to the low prices for the important staples Sugar, Lime and Coconut Products, and not to any serious decline in production. Production has in fact been well maintained under the very adverse conditions due to low prices. The planting community are giving more attention to the cultivation of Fresh Fruit and Vegetables. The erection of the Cold Storage and Packing Station which is to be undertaken and completed during 1931, will result, on most estates, in more extensive raising of fresh produce for marketing as an auxiliary crop to the established staples. This tendency is shown in the gradual change of crops taking place in Cacao, Lime and Coconut estates where fruit planting is being substituted for the usual extensions.

Under present conditions the markets of the world are saturated with the staple products, and no more extension is advisable except in areas possessing a definite advantage on other sites of production. Improved cultivation and extensive manuring on the established profit-bearing areas in order to give a greater return for the outlay is desirable and economic, as against the extensive and expensive spreading of desultory cultivation.

AGRICULTURAL CONFERENCES.

The Agricultural Superintendent visited Trinidad from January 20th to February 2nd, as delegate for St. Lucia and St. Vincent at the Agricultural and Veterinary Conference of West Indian Agricultural Officers. A full programme of meetings and visits had been arranged by the College authorities, and a very useful and interesting time was spent. The visit to the Conference of the Canadian fruit importers was very helpful and enabled delegates to get first hand information on fruit possibilities and the standard required by the Canadian market. Programmes of research work, and the development of closer co-operation and quarantine measures were important features discussed.

The Agricultural Superintendent visited the Experiment Stations and investigated the packing house work of the Island Departments of Agriculture en route. Supplies of orchard planting material were arranged for. A full report was submitted on return to St. Lucia. The proceedings of the Conference have since been published by the College Press.

A Fruit and Vegetable Conference of the Administrative Officers of the Windward Islands and Dominica assisted by the Agricultural Officers and the Commissioner and Assistant Commissioner of Agriculture took place in Castries from the 7th to 13th December 1930, following the visit of the Hon. H. J. Pink, Treasurer, to Bermuda on market investigations. The proceedings, since published in the "Official Gazette", dealt with the growth of the fruit and vegetable export trade, and the need for closer co-ordination between the Islands concerned. Standardisation of fruit and vegetable varieties, packages, and quality of products was elaborated, and shipping and marketing problems were discussed. Delegates visited the Experiment Station, and also Soufrière, where a public meeting of fruit growers was held. As a result of this Conference, co-operative purchase of packing house supplies is now being made in bulk.

AGRICULTURAL EXHIBITIONS.

An Agricultural and Industrial Exhibition under the auspices of the St. Lucia Agricultural and Commercial Society was held at the Botanic Station, Castries, on Monday February 3rd, 1930. Two hundred and five persons staged exhibits and the number of prizes awarded was one hundred and sixty-six.

The total receipts amounted to £77. Prize money was awarded up to £32, the total expenditure being £70. Although held at very short notice, the exhibition was a very satisfactory one, and revealed a good standard of agricultural produce being raised in the Island.

Nova Scotia Exhibition

A collection of exhibits was prepared, trial staged and forwarded by the Agricultural Department for staging at the Nova Scotia Exhibition in Canada during August, 1930. The exhibits were valued at £170, and consisted of 69 cases of preserves, fruit, staple products, and ornamental work, largely native baskets and tortoiseshell. The exhibition was very successful and the St. Lucia stall was highly praised by the authorities. An amount of £66 was remitted as net proceeds of sales.

PEASANTS DEVELOPMENT SERVICE.

The Agricultural progress of the small growers and peasants has been attended to by frequent visits of Agricultural Officers, and particularly the Agricultural Instructor, who devoted practically all his time to this service. The districts specified for active development were Castries, Canaries, Soufrière and Choiseul, while other outlying districts were visited as need arose.

Work on laying out vegetable plots and gardens was extended, and the demonstrations of better methods leading up to improved production took up a large part of the time. The distribution of vegetable seedlings, the planting of orchard trees, and budding and grafting was more actively pursued, and a constant demand for advice and instruction was attended to. Co-operation with planters and peasants was very satisfactory and a considerable addition to orders for plants, seeds and miscellaneous supplies was received and dealt with.

The work is shortly described below :—

Peasants' Plots.

In the Dennery district a shortage of ground provisions was observed. Plantains formerly absent from this district were introduced, and are now being marketed ; pulse crops, onions and garlic were also being increased in the Forestiere, Babonneau, and Choiseul districts.

Vegetables for Export.

The cultivation of vegetables suitable for export was demonstrated and is being gradually taken up by the peasants. The first crops are in the nature of trial crops, and as experience is gained there promises to be a good response from the small planters. Plants and seeds of special varieties were distributed at nominal rates. In the case of tomatoes this has resulted in the disappearance of the semi-wild acid fruit, which has been superseded by Bonny Best and Marglobe varieties. Further, a habit of purchasing reliable vegetable seeds is being built up in contrast to that of using home grown seed saved from poor types.

Fruit Orchards.

The replacement of inferior fruit trees by topworking these with better varieties proceeded vigorously among the peasants and many schools co-operated with the Agricultural Department in this work. Orchards were also laid out for small growers, particularly in the Castries, Soufrière, Dennery and Micoud districts, and planted with purchased trees.

Distressed Cane Farmers.

Peasants situated in the sugar areas were still growing canes for factory supply, without any definite price in view. In other districts only small crops were grown for local syrup-making. Better varieties of canes were supplied free to those in distress, and the planting of orchard trees in cleared circles in the cane fields which are to be cropped in ground provisions after removal of the sugar crop, was initiated in some districts. In the Mabouya Valley peasants participated in working a part of the cane area on a share basis, one-third of the crop being taken over by the Factory. In several cases peasants failed to cope with the cultivation and finally abandoned their fields after a hard struggle.

Co-operation.

Officers of the Department spend several days or weeks in areas needing attention and are thus able to make visits from garden to garden, and to demonstrate on the spot. Parties of planters are taken to visit other gardens and points of interest are discussed with the Instructor. The peasants have been induced to erect small pens for making manure, a practice formerly unknown to a great many of them.

Mango Top-working.

The cutting back of common mangoes and budding the shoots arising from the treated stump is called top-working, and is a method which utilises established common root stocks for the early production of choice fruit. Mango top-working for planters was started in July, 1930, following the satisfactory outcome of experiments at Union Station. The number of trees treated and converted by the end of the year was 365 ; the percentage of buds pushing was 54·7 per cent. of the total buds inserted. The earliest trees treated were flowering after eight months growth of the bud. This method is now being extended to common citrus and avocado stocks, and is receiving the enthusiastic support of both small and large proprietors.

AGRICULTURAL EXTENSION UNDER THE COLONIAL DEVELOPMENT GRANT.

A programme of extension work submitted under the Colonial Development Fund received approval in December, 1930, and plans were prepared for commencing the work early in the new year. The allotment of funds provides for the establishment of a Cold Storage and Ice-making Plant and the erection of a Packing House to form a Central Fruit and Vegetable Depot located in Castries. This organisation will deal with fruit and vegetables produced and prepared for export and will be under the supervision of the Agricultural Department.

A further allotment provides for the establishment of citrus nurseries and the top-working of mangoes for the production of orchard fruit for export, peasant development being particularly stressed.

A start was made in the distressed cane areas, and operations were rapidly extending by the end of the year.

AGRICULTURAL INSTRUCTION IN THE PRIMARY SCHOOLS.

Report of the Agricultural Superintendent on the Teaching of Agriculture in the Primary Schools of St. Lucia During 1930.

The twenty-second annual examination of the Primary Schools in Agriculture was conducted by the Agricultural Instructor between November 13th and December 1st, 1930, 17 schools being examined. During the year frequent visits had been made to the schools, lectures and demonstrations being given, and the condition of the gardens noted.

The number of pupils examined was 405 as against 372 last year, showing an increase of 8.8 per cent; unfortunately 213 pupils were absent on the days of examination, thus making a total of 618 pupils actually taught Agriculture. A large number of absences occurred in one school in Castries, due to boys frequenting the wharfside and so evading the Agricultural examination. Other large absences were noted at Anse-la-Raye, Canaries and Soufrière, immediately following the annual general examination.

The production and distribution of economic plants is fairly satisfactory as it is not desirable to urge greater distribution unless such plants can be adequately cared for when planted out. It is important that each pupil should establish at least one orchard plant at home, and that each School garden should always be adequately stocked before distributing plants to local planters. Instruction in maintenance and after-care of these trees in order to encourage fruitbearing should now be given, and Teachers should lead the way in this important work, and should record the progress made.

The raising of stocks for budding and grafting should be more carefully attended to, and in view of the scarcity of the sour orange, suitable seed-bearing trees should be cared for and the seeds be regularly prepared for sowing. The success attending the topworking of wild mango trees is interesting, and progress should be carefully noted. It will be found instructive to attempt the topworking of other unproductive or useless varieties of avocados, citrus, and members of the Sapotaceae and Anonaceae.

Ordinary budding and grafting is now understood and successfully practised in all the Schools. Some gardens are well fitted to produce vegetables, and rotation plots of selected vegetables should form a useful complement to orchard work in view of the growing export trade. Certain School garden sites are very unsatisfactory, and in these cases an early opportunity should be taken to obtain from one-quarter to one-half of an acre of productive land outside each town, which can be fenced off and maintained in an attractive condition. All Schools should endeavour to make the gardens pay, and so establish a small fund to provide for tools, seeds, manures, and repairs.

In some Schools the curriculum limits the Agricultural Class to less than one half-hour per week. This is insufficient to permit of a training in Agriculture, and I submit that all Agricultural Classes should spend two hours weekly on practical work and one hour on theoretical subjects. This would permit the working of school gardens somewhat more distant, but established in agricultural land, instead of certain worthless sites at present in use. This would also allow time for visits to neighbouring plantations and crops, and some study of the native flora which I am anxious to encourage.

A stock of garden tools and seeds has been imported for the Schools, and these are being distributed as required.

E. A. WALTERS,
Agricultural Superintendent.

EXAMINER'S REPORT.

Castries Anglican Juvenile.

Both boys and girls are included in the agricultural class and they are thoroughly conversant with the cultivation of the various crops such as string beans, cabbage, lettuce, eggplant, beet, leek and other vegetables which are constantly grown in the garden. A good selection of sour stock in various stages of growth (a few budded) was included in the propagation work. The grafting of the Julie mangoes has not been neglected and this is one of the few schools to plant and grow mango Long seeds in order to obtain proper stocks for grafting. The plant distribution included nineteen grafted Julie mangoes and three budded oranges.

Castries R.C. Boys' Juvenile.

The theoretical knowledge is very satisfactory, but although continuous work is being done the garden is too small to afford sufficient practice to the individual pupils of the very large agricultural class of the school. Work in boxes has been taken up but this is not enough as at present most of the practical work such as cultivation, budding and grafting is done by the older boys; a larger number of avocados and sour oranges should be grown in beds and pots to provide practice for the younger boys until a suitable piece of land can be provided.

Riviere Doree Juvenile.

In spite of the prolonged dry weather, by judicious watering a great deal of practical work has been done in this garden; crops such as tomatoes, cabbages, beans and groundnuts have been cultivated in an instructive manner. Budding and grafting of economic plants and top-working of mangoes form a part of the practical work; arrangements should be made to keep out fowls and allow proper mulching to be done before the dry weather. The girls should be taught agriculture. The distribution of plants included 7 grafted Julie mangoes and 14 budded oranges.

Castries Wesleyan.

The theoretical knowledge was very good, and the boys are very much interested in the practical work. A few Julie mangoes should be grown in tubs to facilitate grafting, as the present tree is inconvenient. The garden is small but a good deal of practical work is done in tubs, boxes and small barrels, and this has enabled the boys to become conversant with the methods of budding and grafting. The plots consisted of eschalot, onions, lettuce, yams, tomatoes, and other vegetables. The plant distribution included 15 grafted avocados, 2 Julie mangoes, and 3 budded oranges.

La Ressource Combined.

The practical work is done on a fairly large scale and both boys and girls are keenly interested. A large number of sour oranges has been raised, and budding and grafting the Julie mango have been a special feature in the practical work. The boys have visited and worked on peasants' holdings and their propagation work included 16 mango Long top worked with Julie buds. The plant distribution showed 37 grafted Julie mangoes, and 9 budded Washington Navel oranges to pupils and peasants nearby.

Micoud R.C. Juvenile.

The answers in the theoretical work were somewhat bookish, and the boys should be encouraged to do more thinking for themselves. In spite of the dry weather, crops of cabbage, tomatoes, eschalot and other vegetables have been grown, but the garden is too small for operations such as budding, grafting, tomato-growing, etc., to be carried out on a scale large enough for present requirements ; a larger piece of land is necessary.

Dennery R.C. Boys' Juvenile.

Useful work has been done at this school. Crops of tomato, cabbage and other vegetables have been grown and a large number of sour orange stocks has been raised and budded with oranges of approved variety ; grafting of Julie mangoes has also been included in the propagation work. A large plot is being cleared for garden work next year and this should give scope for practical work on a larger scale, and in particular the establishment of an orchard. The plant distribution included 24 budded oranges and 6 Julie mangoes.

Laborie R.C. Boys' Juvenile.

Advantage has been taken of the overflow of water at the neighbouring bay leaf factory to irrigate during the drought, and this has improved the condition of the garden. The lay-out of the beds and plots is wrong, and they should be rearranged across the slope and not downhill as at present. Mulching should also be used to help in the dry season, and more sour orange stock for budding should be raised. Plant distribution included 10 budded oranges and 15 grafted Julie mangoes.

Choiseul R.C. Boys' Juvenile.

The practical work is satisfactory, but the soil is poor and manure scarce, consequently, more green dressing should be grown and a compost in a corner of the garden would help ; mulching should also be done just before the dry weather. The orchard trees require pruning and mulching and plots instead of beds of tomatoes should be grown. Several budded oranges and grafted Julie mangoes have been distributed to the pupils.

Soufriere R.C. Boys' Juvenile.

A large variety of vegetables such as cabbage, lettuce, leek, carrot, tomatoes, and eggplant have been continuously grown and the cultivation should be an object lesson to the boys. Attention has been paid to budding oranges, but considering the size of the class the sour stock raised should be increased to a few hundred, to provide sufficient practice for all. A few grafted Julie mangoes should be planted in the old garden to facilitate grafting, and the practice of budding and grafting on neighbouring holdings should be continued. The plant distribution included 7 budded oranges.

Anse-la-Raye R.C. Juvenile.

The agricultural class consists of both boys and girls and they take a keen interest in the work of the garden ; crops such as tomatoes, onions, garlic, cabbages, and beans are constantly grown, and grafting and budding form a large portion of the pratical work. Some of the orchard trees planted out in the old garden have been washed away by flood water and should be replaced early, and the garden should be protected by planting bamboo. Plant distribution included 13 grafted Julie mangoes, and 7 budded oranges.

Forestiere Wesleyan Combined.

The useful work in plot making around the school mentioned last year has been maintained, and this now includes plots of ginger, garlic, onions, tomatoes, cabbages and yams. The majority of pupils, both boys and girls, have small plots at home in which they try to imitate the work done in the school garden. The pupils understand budding and grafting, but much more should be done in budding citrus, especially with oranges and mandarines as a useful object lesson in this fruit district.

Vieux-Fort R.C. Boys' Juvenile.

The theoretical knowledge was good, but owing to continuous drought and scarcity of water the practical work was carried out under great difficulties. Box gardening in a sheltered spot was attempted with a little success, but more advantage should have been taken of mulching early in the year, dry grass for mulch being easily obtainable.

Mon Repos Juvenile.

The agricultural work has shown improvement and the boys are taking more interest in their work. The girls also should be included in the class, particularly as the district is purely agricultural. The garden has been enlarged and 3 Julie mangoes have been planted out in a plot which is to be worked as an orchard. Grafting and topworking of mangoes form a large portion of the practical work and sour orange seedlings are being grown for budding next year. The plant distribution included 5 grafted Julie mangoes.

CANARIES R.C. JUVENILE.

Both boys and girls are included in the agricultural class, and are keenly interested in the practical work; the plot of lime trees near the school which was formerly abandoned has been cleaned up and pruned and is now producing a good crop, but it should have been supplied and mulched before the dry weather. Sour orange stocks should be raised in larger quantities for budding with oranges and a few grafted mangoes should be planted out to facilitate grafting. More propagation of budded and grafted plants from this school is very desirable.

BABONNEAU R.C. COMBINED.

A suggestion was made last year that the girls should be taught practical as well as theoretical agricultural work. This has been carried out and the girls showed better results than the boys in grafting and budding economic plants. Topworking of mangoes on the school land and on peasants' holdings formed a part of the practical work, but enough has not been done in connection with onion, tomato, garlic, peanut and other vegetable cultivation. Sour orange stocks for budding should also be grown on a larger scale. Plant propagation included topworking of 19 mango Long trees.

SALTIBUS R.C. JUVENILE.

Improvement has been shown on last year's work, but sufficient attention has not been given to budding and grafting of economic plants. Too much land is wasted in wide drains and paths. Beds of sour orange stock should be grown, and girls should be included in the agricultural class, and taught budding and grafting as well as the cultivation of English vegetables. Mulching should not be neglected in the dry weather.

List of Marks and Standing of Schools in Agricultural Teaching.

Schools.	No. of Pupils examined.	Condition and use made of garden.	Practical work and knowledge.	Theoretical knowledge.	Total.	Percentage.	Result Note.
Possible Marks	—	10	10	10	30	100	—
Castries Anglican Juvenile	37(a)	10	9	9	28	93·3	E.
Castries R.C. Boys' Juvenile ...	81	8	9	10	27	90·0	E.
Riviere Dorée Juvenile	10	9	9	9	27	90·0	E.
Castries Wesleyan Juvenile	17	9	8	10	27	90·0	E.
La Ressource Combined	10(b)	9	10	8	27	90·0	E.
Micoud R.C. Juvenile	18	9	8	10	27	90·0	E.
Dennery R.C. Boys' Juvenile ...	17	8	9	9	26	86·6	V.G.
Laborie R.C. Boys' Juvenile ...	24	8	8	9	25	83·3	V.G.
Choiseul R.C. Boys' Juvenile ...	28	7	8	9	24	80·0	V.G.
Soufrière R.C. Boys' Juvenile ...	54	8	8	8	24	80·0	V.G.
Anse-la-Raye R.C. Juvenile	13(c)	7	8	8	23	76·6	V.G.
Forestiere Wesleyan Combined ...	8	9	8	6	23	76·6	V.G.
Vieux-Fort R.C. Boys' Juvenile ...	25	7	7	9	23	76·6	V.G.
Mon Repos R.C. Juvenile	9	8	7	8	23	76·6	V.G.
Canaries R.C. Juvenile	27(d)	7·5	7	8	22·5	75·0	V.G.
Babonneau R.C. Combined	11(e)	6	8	7	21	70·0	G.
Saltibus R.C. Juvenile	16	8	6	7	21	70·0	G.

(a) including 16 girls; (b) including 1 girl; (c) including 7 girls; (d) including 11 girls; (e) including 8 girls.

R. W. NILES,
Examiner.

PLANT DISTRIBUTIONS FROM PRIMARY SCHOOLS.

School.	Budded Oranges.	Grafted Mangoes.	Grafted Avocados.
Castries Anglican Juvenile	3	19	...
Castries R.C. Boys' Juvenile	...	...	...
Riviere Dorée ,, ...	14	7	...
Castries Wesleyan ,, ...	3	2	15
La Ressource Combined	9	37	...
Micoud R.C. Juvenile	7	...	...
Dennery R.C. Boys' Juvenile	24	6	...
Laborie ,, ,, ,, ...	10	15	...
Choiseul ,, ,, ,, ...	...	...	...
Soufrière R.C. Boys' ,, ...	7	...	...
Anse-la-Raye R.C. ,, ...	7	13	...
Forestiere Wesleyan Combined	...	...	...
Vieux-Fort R.C. Boys' Juvenile...	...	...	...
Mon Repos R.C. ,, ...	...	5	...
Canaries ,, ,, ...	...	...	...
Babonneau R.C. Combined	...	19	...
Saltibus R.C. Juvenile	...	...	...
Total	84	123	15

RESULTS OF PUPIL TEACHERS EXAMINATION IN AGRICULTURE, 1930.

Name.	School.	Possible Marks 100.
Probationers.		
Gilbert Stanislas ...	Choiseul Boys'	63
Vincent Glasgow ...	Saltibus Juv.	61
Nelson Sylvestre ...	Micoud Boys'	54
Jonathon Saltibus ...	Saltibus Juv.	52
Jonas Lesmond ...	Dennery Boys'	50
Charles Fricot ...	Soufrière Boys'	50
Alexander Hunt ...	Micoud Boys'	50
Hamilton Joseph ...	Riviere Doree	40
Julian Branch ...	Castries R.C. Boys'	38
Kenneth Gajadhar ...	Forestiere	30
Albert Francis ...	La Ressource	29
O'Kenson St. Ange ...	Canaries Juv.	8
1st Year.		
Julius Denis ...	Castries R.C. Boys'	53
Clive St. Croix ...	Choiseul Boys'	51
Charles Eugene ...	Castries R.C. Boys'	51
Willie Andrew ...	Anse-la-Raye	34
Kenny William ...	Vieux-Fort Boys'	27
Philip Finistiere ...	Gros Islet Juv.	5
2nd Year.		
Lennox Chalon ...	Choiseul Boys'	66
Nelson Paul ...	Vieux-Fort Boys'	51
Jeromie Peter ...	Vieux-Fort Boys'	50
3rd Year.		
Harold Gajahdar ...	Forestiere	78
J. A. Beausoleil ...	Soufrière Boys'	53
Remy Fannis ...	Canaries Juv.	50

R. W. NILES.
Examiner.

January 23rd, 1931.

ADMINISTRATION.

REPORT ON THE WORKING OF THE REUNION ESTATE AND LAND SETTLEMENT.

Land Settlement:—Of the 46 lots comprising the Reunion Land Settlement, 41 have completed payments, making a total sum of £934 3 7. Instalments on the remaining five lots were fairly well collected.

Choiseul Village Extension:—The remaining twenty-three lots in the Extension remained unsold during the year.

Reunion Estate:—The estate was put up for public auction in September and was sold for £540 to the Parish Vestry, Choiseul. The estate had been rented out in part to local peasants, and crops of ground provisions were being planted during the year.

The total revenue derived was as follows:—

Instalments on Land Settlement	£8	18	0
Instalments on Village Extension	3	8	0
House Lots and Land Rents	8	10	0
Sale of Reunion Estate	540	4	6
	£561	0	6

CORRESPONDENCE AND DISTRIBUTION OF INFORMATION ON AGRICULTURAL MATTERS.

One hundred and forty-three Minute Papers and one thousand nine hundred and eighty-three letters were dealt with during the year; information was supplied and official returns rendered for the Blue Book; Imperial College of Tropical Agriculture, Trinidad; Imperial Agricultural Bureaux, England; Imperial Institute, London; and miscellaneous overseas enquirers.

Several reports and publications which were presented to the Library are gratefully acknowledged. The following books were added to the Library:—

"Diseases of Animals in Tropical Countries" by Edmonds & Walter; "Recent Advances in Plant Physiology" by Barton-Wright; "Text-book of Tropical Agriculture" by Nicholls; "Fungus Diseases of Plants" by Erikson; "Veterinary Dictionary" by Miller; Stock-Feeders' Companion" by Porter; "Dairy Cattle" by Yapp & Nevin; "Coffee Growing" by McDonald.

EXPENDITURE AND REVENUE.

Expenditure.

Personal Emoluments	£1,228	19	3
Travelling Allowance to Agricultural Superintendent	93	5	0
Travelling Allowance to Agricultural Instructor	120	0	0
Travelling Allowance to Agricultural Officer	43	3	1
Transport Allowance for Visiting Officers of the Imperial Department of Agriculture	1	3	3
Labour, Union and Castries Stations	431	8	1
Seeds, Plants and Manures	142	1	11
Fencing, Gates, &c., Union Station	9	18	5
Transport and Animals	24	19	0
Miscellaneous Requisites	112	7	9
Printing, including Publicity Work and Purchase of Books ...	21	10	4
Minor Repairs to Buildings, Union and Castries	15	1	7
Freight and Transport of Plants	19	0	1
Experiments in Grading, &c., Fruit and Vegetables	59	18	3
Contingencies including Expenditure on Plant Disease	19	19	8
Demonstration Fruit and Vegetable Plot	79	17	5
Experimental Lime Plot at Union Station	69	16	10
Control of Withertip Disease	29	16	7
Agricultural Exhibition	25	0	0
Total	£2,547	6	6

Revenue.

Botanic Gardens, Sales, &c.	£42	6	0
Union Station, Sales, &c.	57	14	1
Land Settlements, Rents, &c.	20	16	0
Total	£120	16	1

OFFICIAL VISITORS TO THE STATIONS.

His Excellency Sir Thomas Alexander Vans Best, K.B.E., C.M.G., Governor and Commander-in-Chief of the Windward Islands, and Mrs. Best : His Excellency C. W. Doorly, C.B.E., Acting Governor, and Mrs. Doorly ; Professor H. A. Ballou, Commissioner of Agriculture ; Mr. G. A. Jones, Assistant Commissioner of Agriculture ; Mr. F. G. Harcourt, Agricultural Superintendent, Dominica : Hon. E. C. Eliot, C.B.E., Administrator, Dominica ; Dr. S. C. Harland, Empire Cotton Growing Corporation ; Professor Wood, Imperial College of Tropical Agriculture, and Miss Wood ; Mr. G. Evans, Principal, Imperial College of Tropical Agriculture : Hon. E. A. McCallan, Director of Agriculture, Bermuda ; Dr. G. J. Myers ; His Honour Major H. Peebles, Administrator, St. Vincent : Mr. Horner, Peasants Adviser, St. Vincent ; a party of Colonial Office post-graduate students from the Imperial College of Tropical Agriculture.

The following visits on special work were made during the year :—

Delegates from the Windward Islands, Dominica, and the Imperial College, to the St. Lucia Fruit Conference.

Dr. J. G. Myers, Sc.D., Research Entomologist, Empire Marketing Board on cane moth borer, and coffee leaf-miner.

Other Visitors to the Stations.

There was a large number of visitors to the Stations during the year.

STAFF CHANGES.

Mr. E. A. Walters, Agricultural Superintendent, was absent on vacation leave from October 13th to 25th.

Mr. R. W. Niles, Agricultural Instructor, was on sick leave from May 22nd to 31st ; he acted as Agricultural Superintendent from October 13th to 25th.

Mr. G. M. Glasgow was appointed Agricultural Officer on one year's probation from February 19th.

Mr. E. L. Daniel was absent on sick leave from April 4th to 13th.

Mr. R. duBoulay was absent on sick leave from November 24th to December 21st, and was also on vacation leave from December 22nd to 31st.

Mr. S. Joseph was on vacation leave from February 26th to March 12th.

Mr. B. Williams, Plant Inspector, was on vacation leave from January 1st to 6th ; he resigned office on May 31st.

Mr. G. Hinds was appointed Plant Inspector from June 1st.

METEOROLOGICAL OBSERVATIONS.—APPENDIX I.

STATION, CASTRIES, St. LUCIA, B.W.I.
Longitude=60° 59′ 49″ W. Latitude=14° 0′ 36″ N. H=10ft.

Month.	Air Temperature.				Absolute Max. and Min.			
	7 a.m.	12 noon	5 p.m.	Mean	Max.	Date	Min.	Date.
January	78·2	85·2	80·5	81·3	88	4th	74	30th
February	78·6	85·2	80·4	81·4	88	7th	74	1st
March	78·1	85·2	79·7	81·0	89	20th	74	1st
April	78·0	84·9	80·1	81·0	89	29th	74	1st
May	78·3	86·1	79·9	81·4	89	1st	73	14th
June	78·1	86·0	80·3	81·4	89	1st	74	7th
July	78·3	82·9	80·9	80·6	90	2nd	73	25th
August	78·3	86·7	80·2	81·4	90	13th	74	10th
September	78·4	86·8	80·3	81·8	91	14th	70	7th
October	78·3	86·3	79·3	81·3	91	2nd	69	1st
November	78·5	85·6	79·3	81·1	91	14th	71	23rd
December	78·0	85·6	80·2	81·2	90	1st	74	3rd
Year ...	78·2	85·5	80·1	81·2	91	2nd Sept.	69	1st Oct.

APPENDIX II.

THER. *ht.*=3′ 0″ RAINGAUGE *hr.*=1′ 0″. STATION CASTRIES.

Month.	Rainfall (inches)			Weather.		Wind. No. of Observations of								
	Total	Max.	Date	Days of Rain	Days of Gales.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm
January ...	9·05	1·89	24th	21	0	0	1	47	29	0	0	0	0	16
February	3·53	0·94	20th	13	0	0	0	67	11	0	0	0	0	8
March ...	1·35	0·63	27th	4	0	0	0	67	19	0	0	0	0	7
April ...	4·40	1·02	15th	16	0	0	0	63	27	0	0	0	0	0
May ...	3·85	1·46	14th	11	0	0	0	61	26	0	0	0	0	7
June ...	6·21	1·15	8th	19	0	0	0	42	35	0	0	0	0	13
July ...	9·01	2·29	25th	20	0	0	0	65	22	0	0	0	0	6
August ...	6·29	1·08	10th	14	0	0	0	72	13	0	0	0	0	8
September	4·14	1·25	4th	7	0	0	0	71	8	0	0	2	0	10
October ...	6·51	1·46	6th	12	0	0	0	86	4	0	0	0	0	3
November	8·09	1·83	14th	20	0	0	0	66	3	0	0	1	0	20
December	6·44	0·85	23rd	20	0	0	0	83	0	0	0	0	0	10
Year ...	68·87	2·29	25th July	177	0	0	1	790	197	0	0	3	0	108

MEMORANDUM ON METEOROLOGICAL CONDITIONS DURING THE YEAR 1930, SAINT LUCIA, B.W.I.

Rainfall: The total rainfall recorded at the Botanic Gardens, Castries, for the year 1930 was 68.87 inches. This was 20.84 inches below the average for the last 40 years (=89.71 inches). Maximum precipitation occurred on 25th July, when 2.29 inches of rain fell at Castries. In the wetter parts of the Colony however, the rainfall ranged from 1.70 inches to 5.04 inches on this date.

The distribution of rainfall throughout the year was below normal, low precipitation occurring during the usual wet season beginning in June, and being continued up to the end of the year. No severe drought occurred owing to moderate showers continued throughout the dry season.

Temperature: Temperature records at the Botanic Gardens, Castries, show a mean noon temperature of 85.5 in the shade. The maximum temperature was 91 degrees, the minimum temperature was 69 degrees, a temperature range of 22 degrees; air temperatures generally were higher.

Weather: The weather generally was fine and warm, with few storms.

APPENDIX III.

RAINFALL RETURNS, 1930.

Observation Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	Maximum in one day and date.		Total days of Rain.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.		
Gros Islet, Reduit Estate	5·59	2·20	0·77	4·41	2·32	4·06	7·06	5·86	3·08	2·66	6·89	2·14	47·04	2·20	Nov. 16th	137
Castries, Corinth ,, ...	7·50	4·42	1·68	5·82	4·29	6·52	8·07	6·94	3·43	5·38	5·74	3·73	63·52	2·40	May 15th	200
* Marquis Estate ...	6·96	2·74	1·16	...	3·43	3·88	8·18	6·29	3·15	4·08	7.32	...	47·19	2·05	July 24th	174
Union Estate ...	11·73	3·50	1·57	5·52	2·77	5·28	8·09	4·83	3·82	4·00	7·58	4·09	62·78	2·45	Jan. 9th	217
Choc ,, ...	7·07	2·90	1·36	2·49	2·29	4·54	7·56	5·94	3·52	3·64	6·32	3·74	51·37	2·08	July 25th	224
Botanic Gardens ...	9·05	3.53	1·35	4·40	3·85	6·21	9·01	6·29	3·24	6·51	8·09	6·44	67·97	2·29	,, 25th	177
The Barracks, Vigie	7·98	2·81	0·97	4·18	3·16	4·98	6·79	4·68	3·95	5·77	7·78	4·99	58·04	1·74	Jan. 25th	171
* Soucis Est. Cul-de-Sac	9·01	3·40	1·35	...	2·96	6·61	8·38	7·03	7·25	...	7·61	4·80	58·40	2·37	Nov. 16th	213
* Crown Lands Est. ,,	10 40	6·28	2·68	7·87	4·52	...	...	...	...	...	...	...	31·75	1·30	Jan. 9th	94
La Perle Est., Roseau	6 76	3·68	1·20	4·07	3·10	4·58	6·93	5·97	5·37	2·98	9·50	5·06	59·20	2·75	Nov. 22nd	157
Mont D'Or Est.. ,, ..	8·87	3·77	1·35	5·00	3·59	5·76	9·59	5·59	7·04	5·96	9·90	4·39	70·81	2·28	,, 22nd	245
Belair Estate, Roseau	7·44	2·77	1·37	2·84	2·27	4·07	6·66	5·96	5·07	4·25	9·95	5·09	57·74	1·96	,, 22nd	206
Vanard ,, ...	8·62	3·13	1·84	4·10	4·08	4·82	10·01	6·77	5·70	4·81	12·37	6·33	72·58	3·24	July 24th	186
Ravine Poisson, Estate	14·64	5·53	2·70	4·27	3·95	6·35	11·63	8·85	6·15	6·40	15·87	5·17	91·51	3·15	Nov. 16th	127
Soufrière, La Perle Estate	8·33	3·71	1·50	4·98	4·45	6·43	10·04	5·81	5·12	9·79	9·31	5·84	75·31	2·17	May 21st	198
Ruby Estate ...	8·70	3·78	1·37	3·89	3·75	3·75	8·54	4·49	6·09	10·79	8·61	6·03	69·79	2·95	Oct. 6th	205
La Dauphine Estate ...	7·95	2·82	1·29	4·81	3·17	6·73	8·26	4·70	6·05	8·07	8·96	5·63	68·44	2·06	Nov. 14th	249
Union Vale ,, ...	7·45	2·73	1·33	3·53	2·59	5·29	7·64	6·19	5·09	6·63	8·85	5·84	63·16	2·37	,, 16th	181
Beausejour ,, ...	10·49	3·94	2·20	6·17	4·86	8·65	11·54	6·43	7·82	3·10	3·43	7·67	76·30	2·26	July 24th	265
Choiseul, Morne Lezard Est.	6·81	3·01	1·83	3·86	2·35	5·87	9·16	6·01	4·67	5·54	6·25	5·60	60 96	3·44	,, 24th	222
Park Estate ..	8·94	3·12	2·52	5·86	3·50	6·40	10·31	6·19	6·39	7·91	10·27	7·29	78·70	3·38	Nov. 14th	239
Woodlands Estate ...	8·97	4·50	3·51	6·83	3·38	6·78	6·36	8·32	8·23	7·31	9·97	7·22	81·38	2·12	Sep. 6th	257
Laborie, Londonderry Est.	6·52	2·80	2·08	4·13	2·40	5·94	8·83	6·17	4·48	6·71	7·46	5·33	62·85	2·43	July 24th	261
Giraud Estate ...	8·31	1·93	2·31	5·31	2·99	6·15	9·88	5·09	6·35	6·24	8·23	5·82	68·61	4·15	Nov. 23rd	173
Black Bay Estate ...	3·57	1·54	1·75	3·18	3·59	7·07	14·36	4·45	3·77	4·85	5·05	3·87	57·05	5·04	,, 25th	132
Vieux-Fort, Retraite Est.	4·30	1·53	0·95	1·34	1·43	3·63	7·98	4·98	3·94	5·25	4·03	4·02	43·38	2·65	July 26th	133
Moule-à-Chique Estate	2·76	1 40	0·72	0·90	0·82	1·27	4·40	2·63	3·64	2·19	3·62	2·00	26·35	2·50	,, 24th	113
* Beausejour Estate ...	3·03	...	0·60	0·90	0·95	2·30	6·03	3·19	2·82	8·68	10·27	2·36	41·13	2·62	,, 14th	114
Pointe Sable ,, ...	3·96	1·53	0·53	0·82	1·10	3·57	7·15	5·31	3·82	3·18	3·85	2·82	37·64	2·30	,, 24th	127
Micoud, Troumassée Est.	6·37	0·87	1·08	1·32	3·18	3·50	4·80	3·91	6·07	3·94	7·74	1·20	43·98	2·40	,, 24th	110
Dennery, Mamiku Estate	4·62	2·23	0·94	2·56	1·90	2·11	4·56	4·26	3·05	3·20	5·43	2·44	37·30	2·30	,, 24th	245
Errard Estate ...	7·50	4·08	2·63	5·90	1·97	4·56	8·24	5·24	4·23	4·76	10·24	4·76	64·11	4·30	Nov. 16th	167
Prospect ,, ..	7·00	3·70	2·28	5·21	3·46	5·02	7·59	5·79	3·28	4·95	12·96	4·21	65·40	5·12	,, 15th	204
La Cayé ,, ..	3·78	3·85	1·56	3·82	2 41	3·32	7·01	4·67	3·96	3·00	7·71	2·14	47·23	1·90	,, 15th	225
Ressource	5·01	3·30	1·38	4·93	2·50	3·48	7·76	6·72	4·96	3·85	8·77	3·15	55·81	2·85	July 25th	178
Richfond ,, ...	5·68	3·29	1·87	4·34	2·55	4·05	7·16	5·98	4·38	3·69	8·65	2·71	54·35	2·66	,, 27th	192
† Border ,, ...	6·67	4·06	1·84	7·91	2·74	4·34	9·57	6·71	5·07	4·06	9·77	4·12	66·86	3·24	Nov. 16th	194

* Incomplete. † New Station.

16th March, 1931.

E. A. WALTERS, *Agricultural Superintendent.*

PRICES OF NURSERY PLANTS, ETC.

The prices of plants do not include the cost of the box or basket, for which a charge will be made, if not returned to the Department.

All prices specified are for plants of standard quality. The prices of plants not included in this list will be fixed by the Agricultural Superintendent.

When Nutmegs are supplied by the owner for grafting, a charge of 3d. will be made for each plant on delivery.

An addition of 100% is made on the price for all plants supplied for export from the Colony.

No plants are supplied on Public Holidays.

At least six months previous notice must be given when large quantities of such plants as Coffee, Cacao, Nutmegs. Citrus, Cane plants, etc., are required as it is not feasible to keep large supplies of these on hand. At least six months' notice is required for large supplies of budded citrus, the sour stock for which have to be specially propagated.

Complaints as to the quality or quantity of plants, etc., supplied, or as to the prices charged, should be made in writing to the Agricultural Superintendent.

PLANTS.

Oranges Budded	6d. to 1/- per plant
Oranges Sour	1/- to 2/- per hundred
Grapefruit Budded	6d. to 1/- per plant
Lime Plants (seedlings)	1/- per hundred
Lime Plants Budded/Grafted	2d. to 4d. per plant
Mangoes Budded/Grafted	6d. to 1/- ,, ,,
Coffee Plants	1/- to 2/- per hundred
Cacao Budded	2d. per plant
Nutmegs Grafted	6d. to 9d. per plant
Avocado Pear	2d. to 3d. ,, ,,
Avocado Grafted	2d. to 3d. ,, ,,
Cane Plants	1/- per hundred
Pineapple Plants	1d. to 3d. per plant
Guava	1d. per plant
Eucalyptus	1d. ,, ,,
Casuarina	1d. ,, ,,
Palms (various)	3d. ,, ,,
Ornamental Plants (various)	2d. to 1/- per plant
Seeds (various)	2d. to 6d. per packet
Seeds Vegetable	2d. to 3d. ,, ,,
Plants for wind-breaks, hedges, etc., other than the above mentioned	1d. to 2d. per plant.

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